

### REMARKS

Claims 1-4, 6-10, 12-16, 18-22, and 24 are pending and stand rejected. All pending claims are believed to be allowable over the references cited by the Examiner as discussed below. Accordingly, a Notice of Allowance for the present application is respectfully requested.

#### Rejection Under 35 U.S.C. §103(a)

Claims 1, 6, 7, 12-13, 18-19, and 24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over May and Hornbeck.

Each of independent claims 1, 7, 13 and 19 recites that the modulation of the radiation by the spatial light modulator (SLM) controls the pattern of the electron beams emitted by the photocathode. In contrast, May's SLM merely passively focuses light onto the photoemission layer 5. In May, the pattern of the electron beams emitted from the photoemission layer 5 is controlled by the photoemission layer 5 and the voltages applied thereto, not by the SLM.

The undersigned does not disagree with the Examiner that May's SLM consisting of liquid crystal device (LCD) modulates light. (E.g., col. 2, lines 6-9 and lines 14-32). However, as shown in FIG. 1, May's SLM (reference numbers 1-4) merely modulates light to focus the light onto the photoemission layer 5. It is the photocathode 5 (via the voltages applied thereto) that deflects the electron beams to control the pattern of the electron beams.

In particular, May states that "The ability of the electrons to interact easily, for instance with magnetic and electrostatic fields, allows a two dimensional electron array to be manipulated in various useful and advantageous ways." (Col. 2, lines 10-13). Similarly, May explicitly states that magnetic or electrostatic deflection means are provided "for deflecting electrons emitted by the photoemitter." (Col. 2, lines 38-39, see also col. 2, lines 40-45).

In May, the pattern of the electron beams *depend on and are solely controlled by the photoemission layer 5*. In other words, *only the photoemission layer 5 and not the liquid crystal layer 2 or the microlens array 1 (i.e., not the SLM) controls the pattern of the electron beams emitted by the photoemission layer*.

This is clearly shown in FIG. 1 in May in which the electron beam is deflected to the left when the voltage applied to the photoemission layer 5 is at  $V = -V_{MAX}$  and the electron beam is deflected to the right when the voltage applied to the photoemission layer 5 is at  $V = V_{MAX}$ . The

pattern of the resulting electron beams is thus controlled by the photoemission layer 5 and the voltages applied thereto, NOT by the SLM (reference numbers 1-4).

Thus May does not disclose that the SLM controls the pattern of electron beams emitted as generally recited in each of the independent claims.

The Examiner also contends that Hornbeck teaches a computer-controlled SLM (pg. 95, section 6.1, lines 1-25). However, even if May were combined with a teaching of a computer-controlled SLM, the combination would *not* result in the claimed inventions. In particular, May's SLM, even if subjected to computer control, cannot be so controlled as May's SLM is a static, non-modifiable element, *incapable of altering its radiation modulation characteristic*.

The Examiner cites Col. 4, lines 50-64 as disclosing of the "ability [of May's SLM] to actively modify the luminosity for a desired pattern." However it is the multiplexing of the optical radiation *by an optical radiation source* that results in the modified gray scale. The SLM is not performing the multiplexing nor any other altering of its radiation modulation characteristics (as is generally recited in the independent claims).

As stated in the previous Amendment, May's SLM 40 consists of elements 1-5 (col., 6, lines 10-11), namely, a microlens array 1 formed on or attached to a rear surface of a liquid crystal device (LCD) comprising a liquid crystal layer 2 sandwiched between glass layers 3, 4 and a photoemission layer 5 formed on the upper surface of the glass layer 4 (col. 3, line 66 – col. 4, line 5). None of these elements, either alone or as a whole, can be adjusted and thus cannot be subject to computer control.

In contrast, each of independent claims 1, 7, 13 and 19 utilizes computer control of the SLM to control the pattern of electron beams emitted. Such a feature is neither suggested nor achieved with the combination of May and Hornbeck.

In view of the foregoing, withdrawal of the rejection of independent claims 1, 7, 13 and 19 as well as claims dependent variously therefrom under 35 U.S.C. §103(a) is respectfully requested.

**Rejections Under 35 U.S.C. §103**

Claims 2-4, 8-10, 14-16, and 20-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over May and Hornbeck and further in view of Engstrom or Brandes.

However, dependent claims 2-4, 8-10, 14-16, and 20-22 are allowable at least because the independent claims 1, 7, 13, and 19 from which they variously depend are allowable as discussed above. Thus withdrawal of the rejection of dependent claims 2-4, 8-10, 14-16, and 20-22 under 35 U.S.C. §103(a) is respectfully requested.

**CONCLUSION**

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

In the unlikely event that the transmittal letter accompanying this document is separated from this document and the Patent Office determines that an Extension of Time under 37 CFR 1.136 and/or any other relief is required, Applicant hereby petitions for any required relief including Extensions of Time and/or any other relief and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 50-1217 (Order No. AMATP010).

Respectfully submitted,



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